VALLEY CITY STATE UNIVERSITY

Program Fact Sheet

www.vcsu.edu - catalog.vcsu.edu - 101 College St SW, Valley City, ND 58072 - 800-532-8641 - 701-845-7202

Computer Science (CSCI)

Courses

CSCI 120. Introduction to Programming. 3 Credits.
An introduction to computer programming using any programming language.
Typically Offered: Spring.
Prerequisite: ASC 93 or higher.

CSCI 124. C++ I. 4 Credits.
An introduction to programming in C++. The course is only offered online.
Typically Offered: On sufficient demand.

CSCI 127. Introduction to Programming in Java. 3 Credits.
An introduction to computer programming using the Java language.
Typically Offered: Spring, even years.
Prerequisite: ASC 93 or higher.

CSCI 130. Introduction to Artificial Intelligence. 3 Credits.
This course introduces students to the fundamentals of Artificial Intelligence (AI), exploring its history, core concepts, major techniques, and real-world applications. Students will gain an understanding of how AI systems are designed, implemented, and evaluated. The course combines theoretical foundations with practical exercises, preparing students to critically analyze and apply AI methods across different domains.
Typically Offered: Fall.

CSCI 160. Computer Science I. 4 Credits.
An introduction to computer science including problem solving, algorithm development and structured programming in a high-level language. Emphasis on design, coding, testing and documentation of programs using accepted standards of style.
Typically Offered: Spring.
Prerequisite: ASC 93 or higher.

CSCI 161. Computer Science II. 4 Credits.
Advanced concepts in computer science including data structures, algorithm analysis, standard problems such as searching and sorting and memory management issues.
Typically Offered: Fall.
Prerequisite: CSCI 160.

CSCI 174. C++ II. 4 Credits.
An intermediate course in programming in C++. The course is offered only online.
Typically Offered: On sufficient demand.

CSCI 199. Special Topics. 1-4 Credits.
Courses not offered in the regular catalog that provide an opportunity to extend student learning.
Typically Offered: On sufficient demand.
Repeatable: Up to 12 Credits.

CSCI 222. Data Analysis and Visualization. 3 Credits.
An introduction to the theories, methods, and techniques of data analysis and visualization, with an emphasis on practical applications. Students will use tools such as Python and its associated libraries to explore real-world datasets. The course covers essential skills in data collection, cleaning, analysis, and visualization, employing statistical and computational methods to uncover insights from data.
Typically Offered: Fall.
Prerequisite: CSCI 120.

CSCI 242. Data Structures. 3 Credits.
Manipulation of graphs and trees. Internal and external sort/merge/search techniques. Dynamic memory allocation. Time/space analysis of algorithms.
Typically Offered: Spring.
Prerequisite: CSCI 161.
Same As: CSCI 242/SE 242.

CSCI 277. Game Development. 3 Credits.
An introduction and practice to game development, using industry-standard tools to provide an engaging platform where students can learn and apply a wide range of skills. These skills include programming, artificial intelligence, computer graphics, 3D modeling, animation, human-computer interaction, problem-solving, and teamwork.
Typically Offered: Spring.
Prerequisites: SE 110 or CSCI 120 or CSCI 160 or CSCI 127.

CSCI 289. Social Implications of Computer Technology. 3 Credits.
An introduction to the effects of computer technology on society and individuals and to ethical problems faced by computer professionals. Topics covered include privacy, the nature of work, centralization versus decentralization and the need for human factors analysis in the development of a new computer system.
Typically Offered: Fall.

CSCI 299. Special Topics. 1-4 Credits.
Courses not offered in the regular catalog that provide an opportunity to extend student learning.
Typically Offered: On sufficient demand.
Repeatable: Up to 12 Credits.

CSCI 350. Assembly Language Programming. 3 Credits.
An exploration of microprocessor-based machine and assembly language concepts.
Typically Offered: On sufficient demand.
Prerequisite: CSCI 370.

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CSCI 365. Programming Language Topics. 3 Credits.
A study of program design, style, expression, debugging and testing in specific programming languages such as Ada, C/C++, Lisp, Logo, Modula-2, Pascal, Prolog, or Visual BASIC. Course may be repeated for different languages.
Typically Offered: On sufficient demand.
Prerequisite: CSCI 160.
Repeatable: Up to 6 Credits.

CSCI 370. Computer Organization & Systems. 3 Credits.
An examination of the fundamentals of computer organization and operating system concepts. Cross referenced with SE 370

Typically Offered: Fall, even years.
Prerequisite: CSCI 160.
Same As: CSCI 370/SE 370.

CSCI 372. Comparative Programming Languages. 3 Credits.
A comparison of the features of several different programming languages with regards to syntax and semantics.
Typically Offered: On sufficient demand.
Prerequisite: CSCI 161.

CSCI 380. Teaching Computer Science. 3 Credits.
An investigation of objectives, methods, techniques, materials, software, and activities related to the teaching of computer science.
Typically Offered: On sufficient demand.
Prerequisite: Admitted to Teacher Education.

CSCI 399. Special Topics. 1-4 Credits.
Courses not offered in the regular catalog that provide an opportunity to extend student learning.
Typically Offered: On sufficient demand.
Repeatable: Up to 12 Credits.

CSCI 450. Practicum in Computer Science. 1-3 Credits.
Experience in the use of computer hardware and software and the opportunity to observe and assist in the management of a computer laboratory.
Typically Offered: On sufficient demand.
Prerequisite: CSCI 370.
Grading: S/U only.

CSCI 494. Undergraduate Research. 3-12 Credits.
The course is designed to integrate subject matter from major coursework and other disciplines into a project that leads to the creation of an original body of knowledge.
Typically Offered: On sufficient demand.
Repeatable: Up to 12 Credits.

CSCI 497. Internship. 3-12 Credits.
An opportunity for students to apply classroom learning to an on-the-job work experience. Internship must be related to the student's major or minor course of study and may be in any geographic location. Credit is granted in the range of three to twelve hours per semester and may be repeated up to a maximum of 12 credit hours. Application and approval through Career Services.
Typically Offered: Fall, Spring, Summer.
Prerequisites: Junior Standing or Senior Standing and cum GPA of 2.50 or higher.
Grading: S/U only.
Repeatable: Up to 12 Credits.